

(No Model.)

2 Sheets—Sheet 1.

A. T. HULL.

HOD ELEVATOR.

No. 304,004.

Patented Aug. 26, 1884.

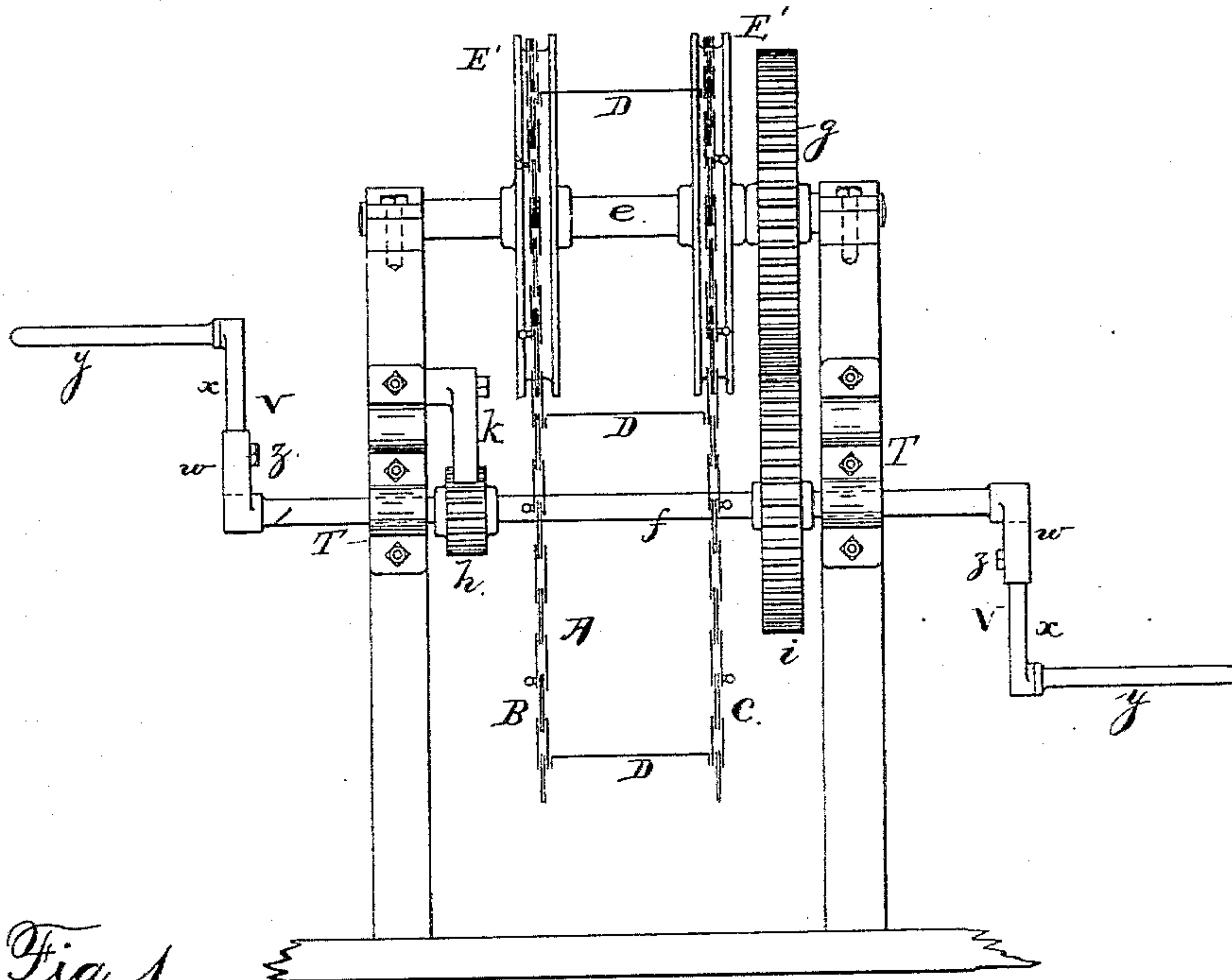
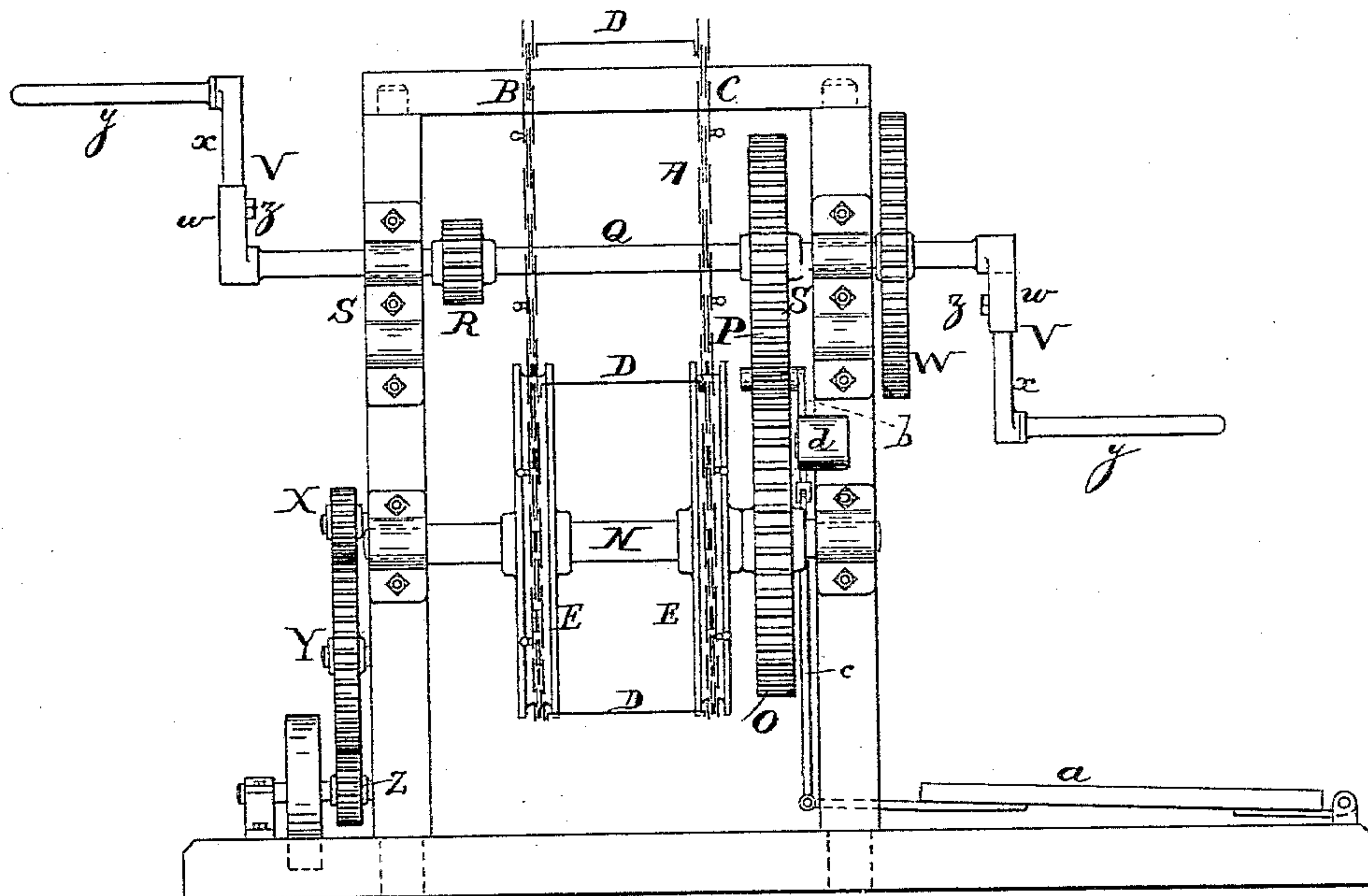


Fig. 1.



WITNESSES:

Chas. C. Gill
Herman Gustow

INVENTOR

Albert T. Hull.

(No Model.)

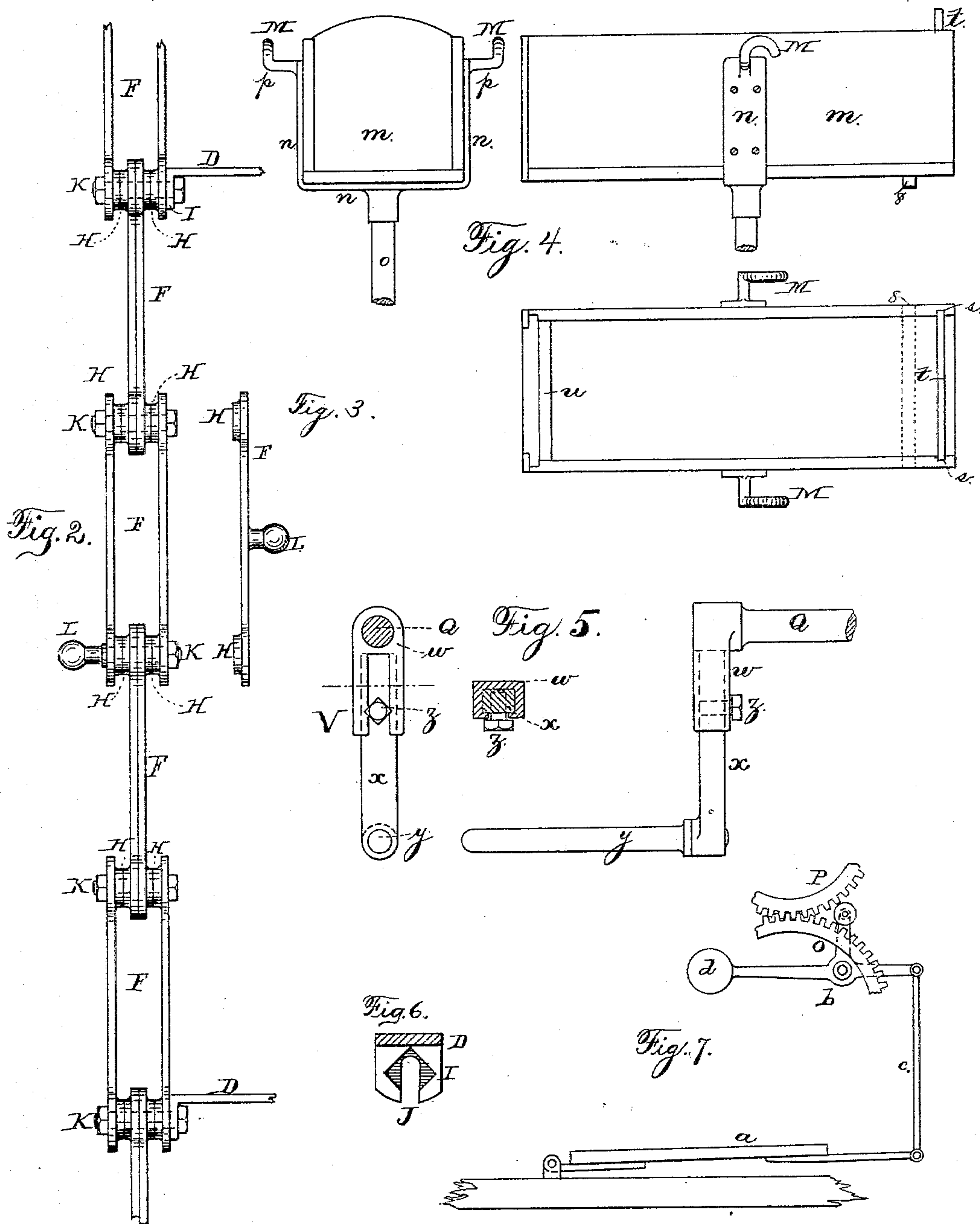
2 Sheets—Sheet 2.

A. T. HULL.

HOD ELEVATOR.

No. 304,004.

Patented Aug. 26, 1884.



WITNESSES:

Chas. C. Gill
Herman Gustow

INVENTOR

Albert T. Hull

UNITED STATES PATENT OFFICE.

ALBERT T. HULL, OF NEW YORK, N. Y.

HOD-ELEVATOR.

SPECIFICATION forming part of Letters Patent No. 304,004, dated August 26, 1884.

Application filed January 14, 1884. (No model.)

To all whom it may concern:

Be it known that I, ALBERT T. HULL, a citizen of the United States, and a resident of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Hod-Elevators, of which the following is a specification.

The invention relates to improvements in hod-elevators; and it consists in the mechanism hereinafter described, and particularly pointed out in the claims.

The invention sought to be protected hereby is illustrated in the accompanying drawings, in which Figure 1 is a front view of an apparatus embodying the invention. Fig. 2 is an enlarged detached view of one side of the endless chain. Fig. 3 is a view of a modified form of link for the chain. Fig. 4 represents the end, side, and top of the hod. Fig. 5 represents an end view, a sectional view, and side view of the crank-handle for applying power to the driving-wheel. Fig. 6 is a vertical transverse section of the tie-bar D, and Fig. 7 is a detached view illustrating the operation of the counterbalance bell-crank lever or chock b.

In the drawings, A denotes the endless elevator belt or chain, consisting of the sides B C, connected by the cross-bars D. The chain A travels upon the pulleys E E', respectively, mounted in the frames at the upper and lower part of the building, as hereinafter described. The sides B C consist of the links F, connected together to form the endless chain by bolts passing through apertures formed in their ends. Around each aperture in the ends of the links F is formed the annular shoulder, H, the purpose of which is to produce a durable link of sufficient strength to withstand the wear and tear incident to the use of the apparatus without being bulky or containing an excess of metal. The annular shoulders H may be located upon either one or both sides of the links, as may be preferred. The cross-bars D have their ends I turned down and provided with a slot, J, through which the bolts K, connecting the links of the chain, pass, whereby said bars are secured in place. The inner face of the bent ends I of the cross-bar D are recessed to receive the head of the bolt K, for the purpose of insuring a firm connection of the bars with the chain. The bolts K, which

connect the links F, will be provided at proper intervals along the chain—say at points about one foot from each side of the tie-bars D—with a head or enlargement, L, for the purpose of receiving the hooks M, located upon the sides of the hod, as hereinafter described. I form the heads L upon the bolts K for purposes of economy and convenience merely, and reserve the right to form them directly upon the links of the chain if I should desire to do so, as shown in Fig. 3. At the lower part of the building the pulleys E are mounted upon an axle, N, which receive its motion through the gear-wheels O P, the latter being secured upon the driving-shaft Q. Upon the shaft Q is also mounted the smaller gear-wheel R, and the shaft is journaled in bearings S, properly located on the opposite sides of the frame. The bearings S are made double—that is, each contains two boxes located one below the other, whereby when a slow speed is desired the position of the shaft Q will be reversed (turned end for end) and said shaft will then be placed in the lower box, so as to bring the small wheel R in gear with the wheel O, at which time the wheel P will, of course, be idle. By the reversal of the shaft Q, as described, I am enabled to secure a rapid or slow movement of the chain, as the circumstances of the case may require. The ends of the driving-shaft Q are provided with crank-handles V, to permit of the application of hand-power. Upon said shaft beyond one side of the supporting-frame is secured a gear-wheel, W, which may be brought into engagement with the small gear-wheel X by reversing the position of the shaft when desired. The wheel X meshes with larger wheel Y, which receives its motion through the pinion Z from the motor when steam, horse, or electric power is employed to drive the elevator.

It will thus readily be seen that mechanism is provided whereby the apparatus may be driven either by hand or other power, as the circumstances of the employment may demand, and that when it is to be driven by hand the speed may be altered as desired. When steam-power is to be applied, a slow speed is always necessary, and the arrangement of the pinion x and the larger wheels W Y serves to insure that result.

It frequently happens that during the em-

ployment of a hod-elevator a brick will slip from the hod and fall through the building, and in such instances the men turning the driving-shaft abandon the apparatus for safety, at which time the driving-shaft, being free, will be given a reversed movement by the weight of the loaded hods, and said hods will immediately descend, frequently causing great damage. In order to prevent this occurrence, a pawl has heretofore been properly secured to slide over one of the gear-wheels during the usual operation of the machine, and upon any reversal in the movement of the mechanism to engage the wheel and stop the machine. The objection to this is that the constant rattle caused by the pawl sliding over the teeth of the wheel is so annoying to the workmen that they throw the pawl from the wheel, rendering it worthless in case of sudden accident; and another and more serious objection to the noise is that it prevents the men at the driving-shaft from hearing any word from the workmen engaged at the upper part of the building, and in such circumstances the men at the driving-shaft can do nothing but continue to operate the cranks without regard to the condition of that part of the apparatus located above.

In order to remedy the objections to the pawl-and-ratchet mechanism for preventing any reverse movement of the driving mechanism, I have provided a platform, which, when in use, will be located beneath the feet of one of the persons turning the driving-shaft, and when thus situated the weight of the operator will depress the platform and withdraw a pawl or chock from contact with the gear-wheels, thus permitting the operation of the apparatus without noise, and when the operator leaves the platform the counterbalance-weight on the pawl will overcome the weight of the platform and move the pawl or chock into engagement with the gear-wheel, thereby instantly preventing any backward movement of the mechanism.

Of the mechanism just described, *a* denotes the platform, *b* the pawl or chock, which is in the form of a bell-crank lever, and is connected with the platform by the rod *c*, one arm of the lever being provided with the counterbalance-weight *d*. The end of the pawl may be formed to enter the teeth of the gear-wheel, or it may be padded and thrust between the wheels, as desired, the only purpose being to automatically chock the wheels.

The frame supporting the pulley-wheels *E'* at the upper part of the building consists of two sides properly supported and carrying the shafts *e* and *f*, upon the former of which is mounted the pulley-wheels, and in addition the gear-wheel *g*, which meshes with the smaller wheel *h*, mounted upon the shaft *f*. The shaft *f* is provided at its ends with crank-handles, whereby power may be applied to it in the same manner and for the same purpose as to the driving-shaft *Q* at the lower part of the apparatus. The shaft *f* has mounted upon it

also the gear-wheel *i*, and the sides of the frame have double bearings *T*, similar to those at the lower part of the apparatus, for the purpose of permitting the reversal of the shaft *f*—that is, end for end—in order to bring either the gear-wheels *i* or *h* into engagement with *g*, according as a slow or rapid movement is desired. A pawl, *k*, is provided to engage the gear-wheel *i* or *h*, for the purpose of preventing any backward movement of the machine when the operators leave the crank-handles.

The hod (lettered *m*) is rectangular in form, and is sustained in the yoke *n*, to which the handle *o* is applied. From the upper ends of the sides of the yoke *n* project the hook-shaped arms *p*, having hooks *M* aforesaid, which, when the hod is inserted endwise between the sides of the chain, will rest upon the heads of the bolts *K*, their attachment thereupon being rendered secure by the enlargements or heads *L*. The front edges of the hod are provided with grooves *s s*, into which a plate, *t*, may be inserted for the purpose of closing the mouth of the hod when it is desired to carry mortar. The sides of the hod in rear of the back *u* will be grooved also, to receive the plate *t* when the latter is not in use.

It is advantageous in operating hod-elevators to carry the hods in a nearly-vertical position, and to facilitate the attainment of this end and prevent the escape of the mortar being carried are the objects of the plate *t*.

The rectangular-shaped hod, when combined with a hod-elevating apparatus, possesses many advantages, among which is the entire safety with which bats or pieces of brick may be carried, the fact that the usual quantity of brick may be placed within a hod whose upper portions are more narrow than the usual V-shaped hods, when filled with the consequent ability of employing a chain, the sides of which are of the minimum width.

It is well known that in the employment of the hod-elevating apparatus the endless belt or chain must frequently be passed through a narrow hall or stairway or chimney, and in many instances the use of the elevating apparatus must be entirely dispensed with for want of room to operate it. It is plain, therefore, that any means or arrangement of the hod which will permit the employment of a narrow chain without decreasing the usual quantity of brick carried in a hod must be of vital importance, and to accomplish these results is the purpose of the rectangular-shaped hod described.

It is obvious that in the employment of the apparatus hereinbefore described hand-power may be applied either at the bottom or the top of the building, or at both simultaneously, according to the condition of the building and other circumstances well understood by those having a knowledge of the art to which the invention relates. When desired, the hand-power may be entirely dispensed with and steam or other power applied, as hereinbefore described.

When steam-power is employed for driving the mechanism, the crank-handles may, for convenience, be removed from the ends of the shafts *f* *Q*. These crank-handles may be of any well-known construction; but I prefer for many reasons to make use of the handle illustrated in the drawings, which consists of the flanged arm *w*, welded to the end of the shaft, and adapted to receive within its side flanges the plate *x* carrying the handle *y*.

The plate *x* may be inserted and withdrawn from the flanged arm at will, and its retention therein during use may be effected by means of a set-screw, *z*.

One important consideration in the construction of a hod-elevator is that of safety. A brick or hod falling through the building is capable of doing great damage.

In order to prevent any accident arising from the breakage of the supports of the hod when employed in connection with the endless traveling belt or chain, I have provided the safety strip or projection *8*, which, should the hod be left unsupported during the operation of the belt or chain, would catch upon the next lower tie-bar *D* and prevent the hod from falling through the building.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In a hod-elevator, a driving-shaft carrying a large and a small gear-wheel, in combination with an auxiliary shaft carrying pulley-wheels, upon which the chain or belt travels, and a gear-wheel, the driving-shaft being adapted to be changed end for end in suitable bearings, so as to bring either the small or larger gear-wheel into engagement with the gear-wheel on the auxiliary shaft, substantially as set forth.

2. In a hod-elevator, the chain consisting of links having apertures in their ends to receive connecting devices, said apertures being surrounded by an annular shoulder located upon one or both sides of the link, substantially as set forth.

3. In a hod-elevator, the chain consisting of the sides *B* *C* and tie-bars *D*, the bars having bent ends *I*, provided with the slot *J*, and the recess whereby the bars may be secured upon the bolts connecting the links, substantially as set forth.

4. In a hod-elevator, the chain consisting of

the links connected by the bolts *K*, a portion of the bolts being provided with enlargements or heads *L*, in combination with a hod having arms adapted to rest upon the bolts between the sides of the chain and the head, substantially as set forth.

5. For use in combination with a hod-elevator, the hod provided with grooves at its front edge to receive the plate *t*, substantially as and for the purposes described.

6. In combination with an endless hod-elevating belt or chain, the rectangular-shaped hod, having a flat bottom and substantially vertical sides, and means for attaching it to the chain, substantially as set forth.

7. A hod-elevator provided with a driving-shaft at the upper and lower part of the structure, and having crank-handles whereby power may be applied above and below simultaneously or at either point separately, substantially as set forth.

8. A hod-elevator provided with a safety appliance for preventing any reverse movement of the mechanism, which appliance is removed from contact with the wheels by the weight of the operator, and is automatically thrown into contact with said wheels when the operator leaves the apparatus, substantially as set forth.

9. In combination with a hod-elevator, the platform *a*, connecting-rod *c*, and weighted bell-crank lever *b*, substantially as and for the purposes expressed.

10. The crank-handle for the driving-shaft of the hod-elevator, consisting of the flanged arm welded to the ends of the shaft, and the detachable plate carrying the handle, substantially as set forth.

11. In combination with a hod-elevating belt or chain, the hod adapted to be suspended between the two sides of the chain, and having a safety projection upon the lower side of its bowl, substantially as and for the purposes set forth.

Signed at New York, in the county of New York and State of New York, this 11th day of January, A. D. 1884.

ALBERT T. HULL.

Witnesses:

CHAS. C. GILL,
HERMAN GUSTOW.